

# Scientific Committee for Oceanographic Aircraft Research

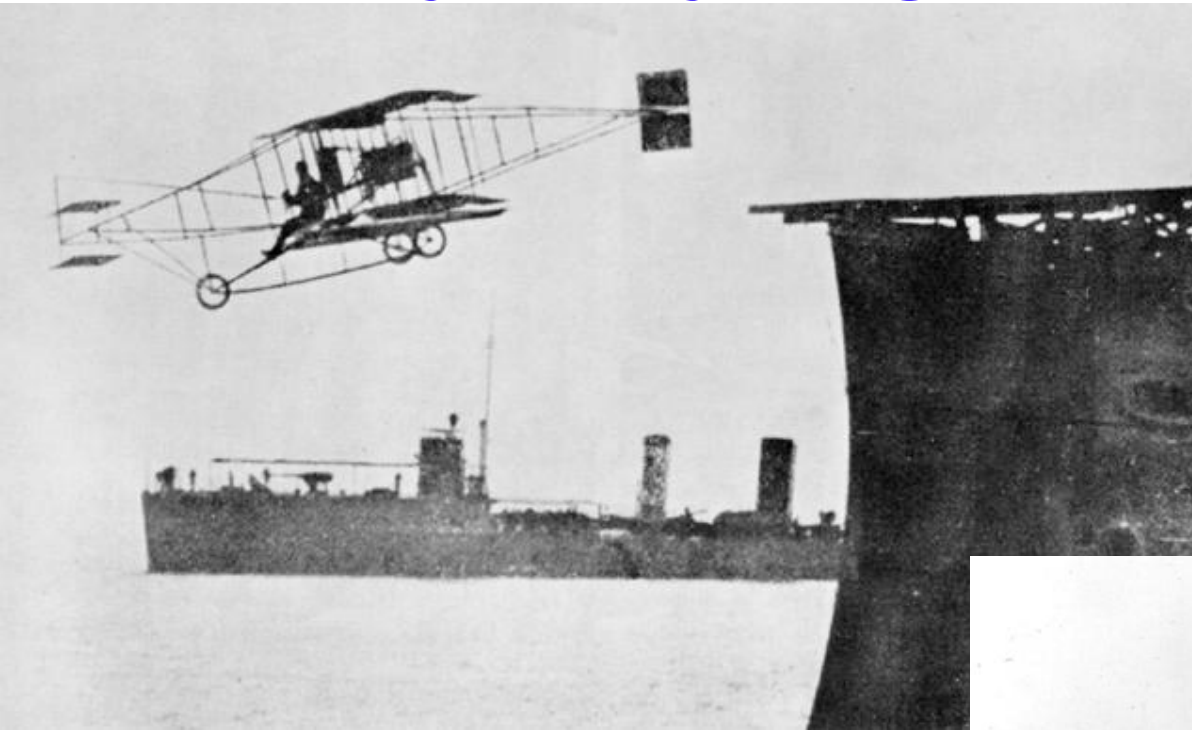
## *Briefing for the ICCAGRA Meeting: Sept. 2011*



**Integrating Manned & Un-manned  
Aircraft into Ocean Observations**

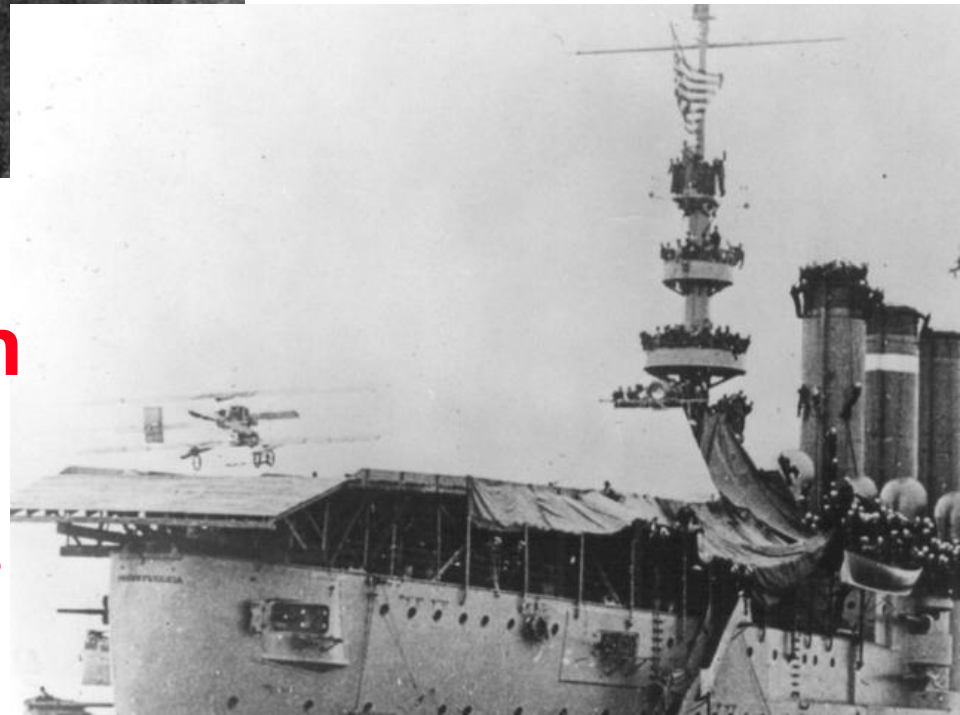


# ***A Century of Synergism: Maritime Air!***



**Eugene Ely. Nov 1910**

**Smaller, lighter, and smarter technology can expand the horizon of today's research ships**



# SCOAR Membership 2010 / 2011



**Daniel Schwartz**

**James Hain**  
(pending nominee)

**Phil McGuillivary**

**Bob Bluth**

**Haflidi Jonsson**

**Le Roy Woods**

**Steven Hartz**

**Luc Lenain**

**Chair**

**Associated Scientists at Woods Hole**  
tbd at UNOLS Council Mtg., Oct. 2011

**United States Coast Guard**

**CIRPAS (ex officio)**

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**University of Alaska (RVTEC represent.)**

**University of California at San Diego**

# FACILITIES:

- **CIRPAS - Located on the South/Central California Bight**
- **Marina Facility**
  - 3500 ft runway - manned operations only
  - 30,000 sq ft maintenance hangar
  - Instrumentation and Calibration Laboratory
  - Maintenance and Payload integration shops
  - Offices







# THE AIRCRAFT FLEET



UV 18-A Twin Otter



Pelican (2)



Predator (3)



# **SCOAR Meeting Held at the CIRPAS facility**

**Marina, Calif.**

**June 23 & 24  
2011**



***Presentations available at:***

**<http://www.unols.org/meetings/2011/201106sco/201106scomi.html>**

# **INCORPORATING AIRCRAFT INTO OCEAN OBSERVING SYSTEMS**

Dr. Phil McGillivray

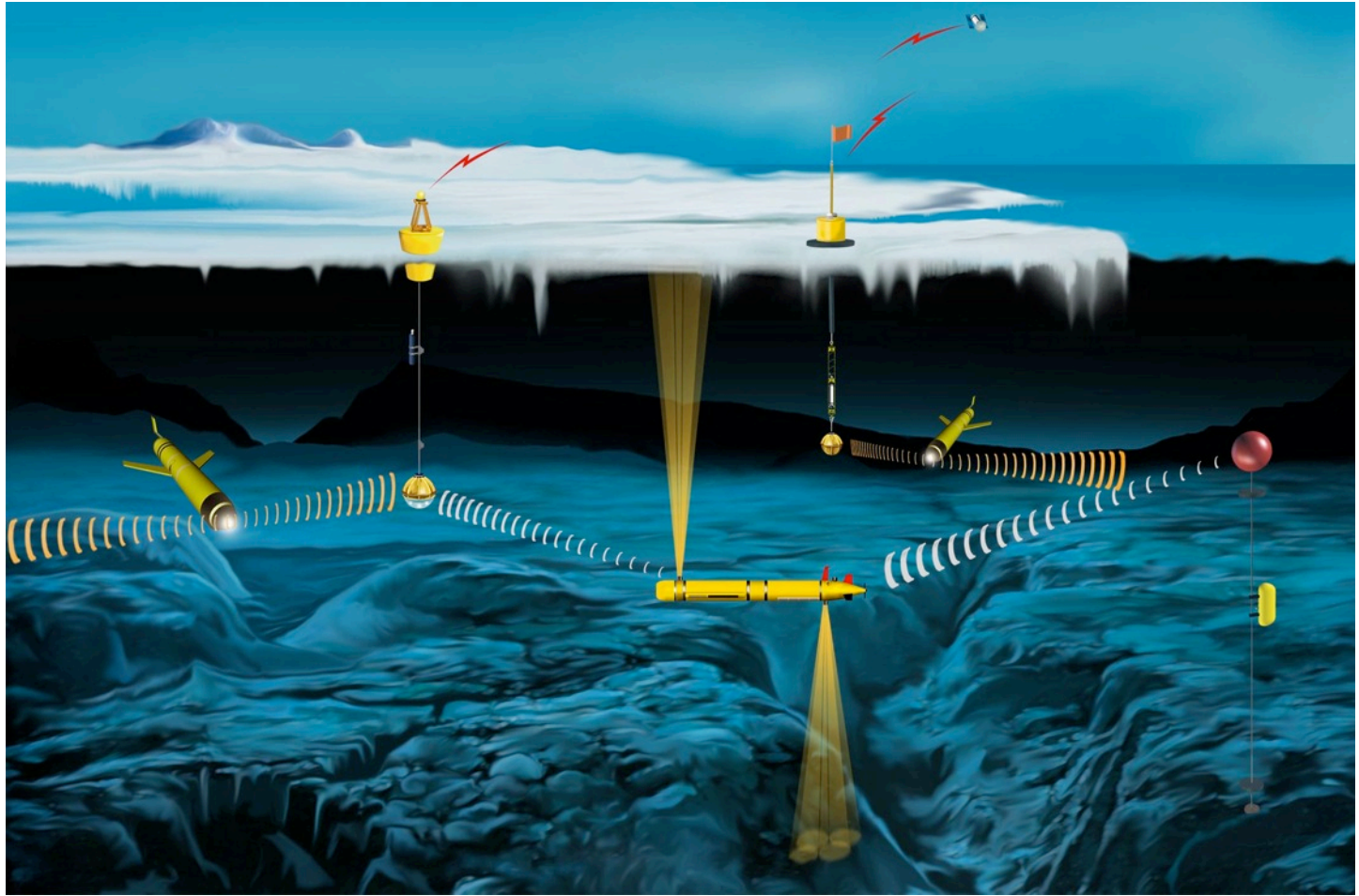
USCG PACAREA & Icebreaker Science Liaison  
SCOAR, Monterey, June 22-23, 2010



***A Few Examples of Platforms, Concepts, Challenges and Projects.....***



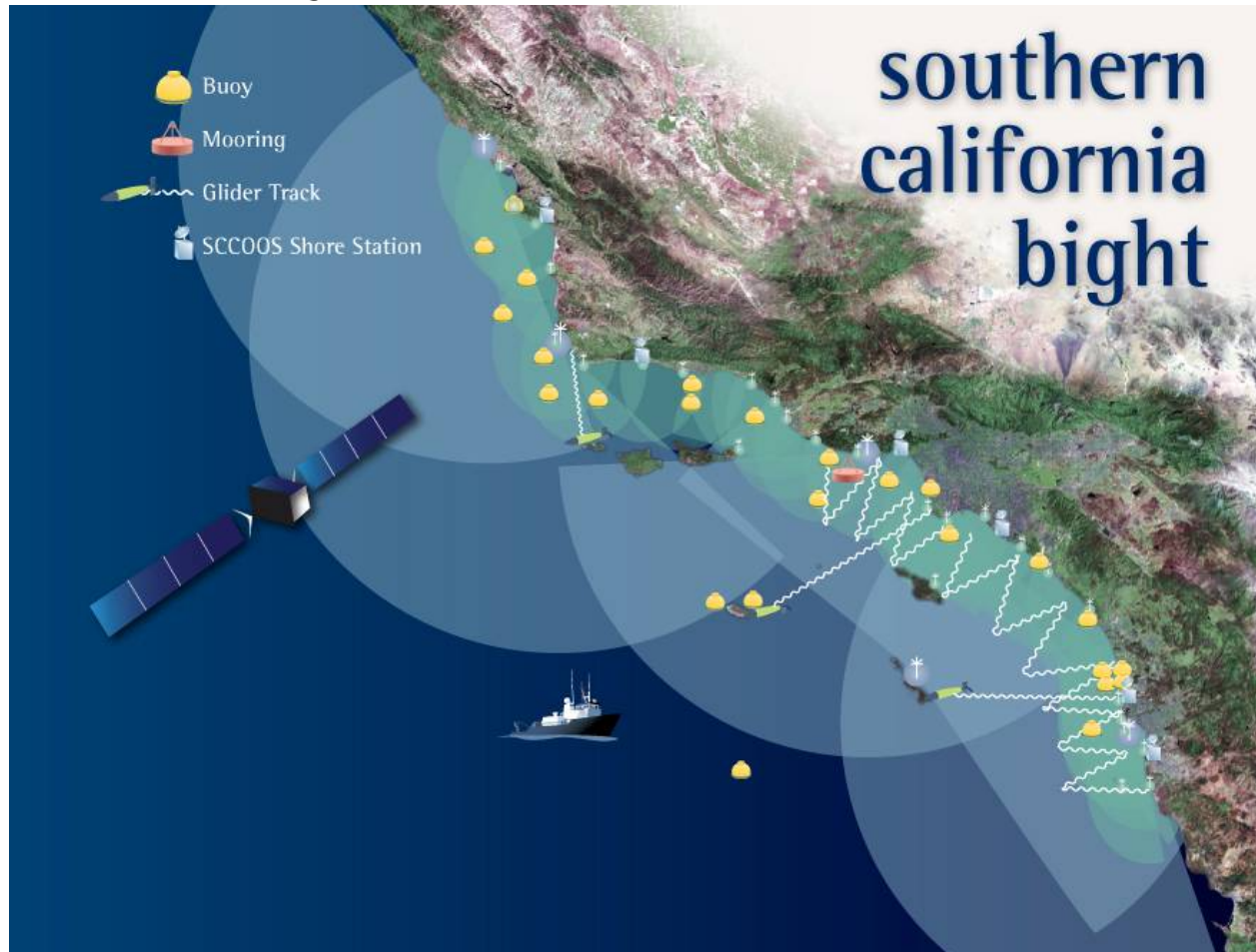
# Navy concept of an Ocean Observatory (from Lee Freitag, WHOI)



*What's missing from this picture?*



# The prototype Ocean Observing System: SCCOOS



**Conceptual spatial coverage arcs by shore-based light aircraft systems.**  
***Rapid event response, spatial coverage, resolution: Advantage Aircraft***

# Flux Platforms for Fair to Moderate Weather

Buoy: 10m  
Ship: 14m  
Aircraft: >33m



# ScanEagle deployment from NOAA ship





# ScanEagle Recovery on NOAA ship





# NOAA Manta w shipping boxes



One problem: ice up of manned and unmanned aircraft; possibly solved by Battelle electrically conducting carbon nanotube paint. Wind tunnel tests worked, field testing in planning stages.



***How can embarked Unmanned Aerial Systems revolutionize the data collection and observations conducted from research ships?***

***UAS are proving to be capable tools in multiple military and civil applications***

***Sensors are smaller, more capable with new ones on the horizon.***

***Regulatory issues are supplanting platform limitations as the primary operational challenge.***

***Funding Agencies are likely to face Budgetary pressure as deficits explode (Which may make these platforms more attractive)***

# *University-National Oceanographic Laboratory System*



***Thank You!***

***UNOLS SCOAR  
Committee***

***Daniel Schwartz  
Chair***



National Science Foundation  
WHERE DISCOVERIES BEGIN

